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Validity Evidence of the Critical Consciousness Scale short version

Evidências de Validade da versão reduzida da Critical Consciousness Scale

Alexsandro Luiz **De Andrade**¹ , Juliana Pereira Rodrigues **Nunes**¹ , Mariana Ramos de **Melo**¹ , Pâmela Fardin **Pedruzzi**^{1,2} 

¹ Universidade Federal do Espírito Santo, Departamento de Psicologia, Programa de Pós-Graduação em Psicologia. Vitória, ES, Brasil. Correspondence to: M. R. MELO. E-mail: <mariramos.melo@gmail.com>.

² Centro Universitário FAESA, Unidade de Psicologia. Vitória, ES, Brasil.

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Abstract

This study aimed to develop a shortened version of the Critical Consciousness Scale, making the assessment of psychosocial studies' constructs faster and more efficient. Critical consciousness is an individual or collective ability to critically review the social structures' organization and their oppression perpetuation as well as their maintenance of power; they were viewed based on the thoughts of Brazilian educator Paulo Freire. In the field of psychological measurement and research, critical consciousness can be understood as a gradual process that begins with reflection and culminates in transformative action, which can be assessed using the Critical Consciousness Scale. The study sample consisted of three waves of a survey data collection covering 1,322 Brazilian adult respondents. Experts' review procedures, followed by factorial and invariance analysis strategies, resulted in a 12-item reduced version of the measure, covering the dimensions of Critical Reflection ($\alpha = 0.93$), Critical Responsibility ($\alpha = 0.73$), and Critical Action ($\alpha = 0.84$). Evidence of external validity showed correlations with aspects of social class, marginalization, economic constraints, and decent work. In our study we discussed the perspectives regarding the instrument's use in the different fields of pure and applied social sciences.

Keywords: Psychometrics; Social Class; Social inequality; Social justice.

Resumo

O presente estudo tem por objetivo elaborar uma versão reduzida da Critical Consciousness Scale, tornando mais rápida e ágil a avaliação dos construtos em estudos psicossociais. Consciência crítica é uma capacidade individual ou coletiva de analisar criticamente a organização das estruturas sociais e o modo como essas perpetuam a opressão e a manutenção do poder, oriunda do Pensamento do Pedagogo Brasileiro Paulo Freire. No campo de estudos psicológicos de mensuração e pesquisa, a consciência crítica pode ser entendida como um processo gradual, que começa na reflexão e culmina na ação transformadora, podendo ser avaliada pela Critical Consciousness Scale. A amostra do estudo foi composta por três ondas de coleta de dados, totalizando 1.322 respondentes de adultos brasileiros. Procedimentos de análises de juízes, sequenciados por estratégias de análise fatorial e invariância, apresentam uma versão reduzida de 12 itens da medida, cobrindo as dimensões de Reflexão Crítica ($\alpha = 0.93$), Responsabilidade Crítica ($\alpha = 0.73$)

e Ação Crítica ($\alpha = 0.84$). Evidências de validade externa apontaram correlações com aspectos de classe social, marginalização, restrições econômicas e trabalho decente. Discute-se perspectivas de uso do instrumento em diferentes campos das ciências sociais puras e aplicadas.

Palavras-chave: Psicometria; Classe social; Desigualdade social; Justiça social.

Critical Consciousness (CC) was a term developed and recognized based on the work of Brazilian educator and philosopher Paulo Freire (Freire, 1979; 1987). His most prominent work, entitled *Pedagogy of the Oppressed* (Freire, 1987), advocates that education should help expand people's reflective capacity, especially of those living on the margins of society. The premises of Paulo Freire's seminal work seek to highlight the need for an 'awakening' of people so that they can critically analyze the organization of social structures and how oppression and the maintenance of power in the hands of traditionally privileged groups may be perpetuated (Pedruzzi & De Andrade, 2024).

The CC understanding, as proposed by Freire (1979; 1987), inspired further studies that deepened and systematized such concept. In the operational study of the construct, the development of Critical Consciousness is understood as a gradual process, which begins with reflection and culminates in transformative action (Diemer et al., 2015; Frisby & Diemer, 2024). Contemporary researchers have advanced the dimensional structuring of this concept which is formed by three main components: Critical Reflection/perception of inequity, Critical Responsibility/critical motivation and Critical Action (Diemer et al., 2015; Jemal, 2017; Pedruzzi & De Andrade, 2024).

Critical Reflection refers to cognitive dimensions related to awareness of historical and systemic forms of oppression, such as gender, racial, and class inequalities, as well as the analysis of the structures that sustain those conditions (Diemer et al., 2021; Pedruzzi & De Andrade, 2024). As a characteristic of individuals or groups, it also encompasses the commitment and capacity to address these perceived inequalities, acting as a driver for actions that challenge oppressive systems and promote social transformation toward more equitable settings (Diemer et al., 2021; Pedruzzi & De Andrade, 2024).

Critical Responsibility, the term used in Brazilian Portuguese (Pedruzzi & De Andrade, 2024), or critical motivation in North American terminology (Frisby & Diemer, 2024), reflects the use of activating and cognitive components of critical behavior toward societal power structures, representing the willingness to affect and promote systemic change. The construct also represents characteristics related to the individual intrinsic values, including social roles considering the need to mobilize social change.

In turn, Critical Action refers to behaviors that are consistent with personal values and are critical of the structure that perpetrates inequality, encompassing intentional actions in the face of oppressive social and cultural aspects – with the aim of challenging oppressive systems (Frisby & Diemer, 2024; Pedruzzi & De Andrade, 2024). This dimension encompasses sociopolitical participation (Diemer et al., 2017), such as participating in social and/or political activities in an effort to change inequality conditions (Diemer et al., 2017; Rapa et al., 2020).

The CC has been considered a topic of growing interest among researchers in different fields of knowledge; as socially marginalized groups become aware of their conditions, the possibility of their empowering themselves and hence seek strategies to combat oppressive structures increases (Cadenas & McWhirter, 2022). Although reflections related to CC have been developing for a considerable time (Freire, 1979; 1987), research in the field of psychology, and especially research on the topic carrying a psychometric bias, have gained greater attention in recent years (Autin et al., 2021; Cadenas & McWhirter, 2022; Frisby & Diemer, 2024; Kim & Allan, 2021; Pedruzzi & De Andrade, 2024).

Critical Consciousness: Association with Other Constructs

Critical Consciousness has been associated with variables in different fields of study, such as the psychology of individual differences, aspects of prejudice and race, migration, social justice, work, and education (S. D. Brown et al., 2003; Diemer & Blustein, 2006; Kim & Allan, 2021). Research has shown that high levels of critical consciousness are related to higher levels of self-esteem of youth belonging to racial and ethnic minorities (Godfrey et al., 2019), as well as better academic performance among Black youth (Seider et al., 2020), and involvement in actions with view at changing the reality of immigrants (Arce et al., 2024).

In the field of social justice and career, primarily guided by Psychology of Working Theory (PWT), scientists have sought to understand how variables influenced by contextual aspects (marginalization and economic constraints) interact within the model (Duffy et al., 2016). In this context, CC has been positioned as an element to mitigate the negative impacts of these contextual factors on individual variables (such as volition and career adaptability), positively influencing the perception of decent work (Duffy et al., 2016; Pires et al., 2020). Research based on PWT has found that individuals who believe in the possibility of a more just and egalitarian society tend to have a greater perception of impoverishment and fewer possibilities for choice (Kim & Allan, 2021; Pires & De Andrade, 2022). Furthermore, it has been observed that, for Black people, CC plays a significant moderating role in the relationship between marginalization, economic constraints, work volition, career adaptability, and decent work (Autin et al., 2021).

Interventions have also been implemented, and critical consciousness is included as one of the management variables for individuals and groups. Three distinct interventions were developed based on the conceptualization and enhancement of critical consciousness for individuals and groups (Kenny et al., 2019). The first, aimed at high school students, demonstrated an increase in critical consciousness levels across its dimensions, an improvement in the perception of the importance of their field of study, as well as an increased sense of purpose and engagement levels for higher education. The second, aimed at young adults, included guidance activities regarding market exploration and career selection. The third proposal integrated the previous interventions for young people living in the city outskirts. Initial results included an increase in the sense of purpose, school engagement, career adaptability, and volition, although no significant changes were identified in critical motivation (Kenny et al., 2019).

Critical Awareness Measures

The development and validation of the Critical Consciousness Scale (CCS) by Diemer et al. (2017) represent a significant milestone in the assessment of Critical Consciousness using psychological scales. The instrument consists of 22 items and was organized into two main domains: Critical Reflection (CR) and Critical Action (CA). The CCS has been adapted for different American audiences, such as elementary and high school students from different locations (Diemer et al., 2021), public high school and college students (Rapa et al., 2020), nursing professionals (Pirsch et al., 2023), civil engineering students (Sarker et al., 2024), and young people in conflict with the justice system (Singh et al., 2020). The instrument was also improved with the insertion of a third element called Critical Motivation (Diemer et al., 2020), as well as the proposition of shortened versions (Diemer et al., 2020; Rapa et al., 2020).

In Brazil, Pedruzzi and De Andrade (2024) adapted a Brazilian Portuguese version of the Critical Consciousness Scale. The instrument was a revised synthesis of the Critical Consciousness Scale (Diemer et al., 2017), Short Critical Consciousness Scale (ShoCCS) (Diemer et al., 2020), and Short Critical Consciousness Scale (CCS-S) (Rapa et al., 2020). The Brazilian version of the measure showed evidence of internal structure and invariance by social class, gender, and educational level in three domains: Critical Reflection ($\alpha = 0.93$); Social Responsibility ($\alpha = 0.73$), and Critical Action ($\alpha = 0.84$).

Limitations of the Critical Consciousness Measures

Research conducted to date reveals significant limitations in instruments for measuring CC, highlighting the need for further studies and improvements (Diemer et al., 2015; Jemal, 2017; Pedruzzi & De Andrade, 2024). First, current instruments bear a significant limitation in that they do not capture the full range of marginalization experience. They tend to focus only on ethnic-racial, class, and gender aspects, neglecting other critical factors such as disabilities, sexual orientation, and gender identity (Diemer et al., 2017).

Furthermore, there is a pressing need to assess whether instruments maintain validity when applied to different racial and intersectional identity groups (Diemer et al., 2020). This type of analysis is essential to ensure that CC is assessed fairly and accurately in diverse contexts. It is also necessary to explore how CC relates to other constructs; this would provide a more comprehensive understanding of its impact on other variables (Rapa et al., 2020). Most studies on this topic have been conducted with predominantly North American samples (Diemer et al., 2017; Diemer et al., 2020; Diemer et al., 2021), which raises questions about the relevance and validity of these instruments in other cultural contexts. Adaptation and validation of measures in diverse contexts are necessary to ensure the relevance and applicability of instruments in different cultural contexts.

The Present Study

Seeking to address some of the gaps mentioned in the previous topic and in order to contribute to the scientific advancement in this field, we developed a shortened version of the Brazilian Critical Consciousness Measure (Pedruzzi & De Andrade, 2024), maintaining its high-quality psychometric parameters. Furthermore, evidence of external validity was gathered using measures tested within the Psychology of Working Theory theoretical framework (Duffy et al., 2016). Additionally, the measurement's invariance with regard to data collection type, gender, race/skin color, and social class was assessed to ensure that the instrument is applied equitably and consistently across different groups and social contexts.

Method

Procedures for Preparing a Reduced Version

To propose the reduced version, the Brazilian Portuguese version of the CCS was used (Pedruzzi & De Andrade, 2024). The CCS was a measure adapted from the compilation of different North American scales that were proposed for assessing the Critical Consciousness (Diemer et al., 2015; Diemer et al., 2017; Rapa et al., 2020). The measure in its final version included 24 items, divided

into three factors: critical reflection ($\alpha = 0.93$; $\omega = 0.93$), critical responsibility ($\alpha = 0.73$; $\omega = 0.77$) and critical action ($\alpha = 0.84$; $\omega = 0.85$). To develop the reduced version, we adopted a mixed item selection system, commonly used in other studies on reduction and evidence of short psychological measures (De Andrade et al., 2022; Mourão et al., 2022). The system followed the decision to retain the items with the highest factor loading in the initial version of the measure in Brazilian Portuguese, along with the criterion of agreement on the relevance of the item to the factor. The selection of the resulting items is presented in Table 1.

Participants

The total number of the sample survey participants who responded to the instrument was 1,322; three waves of data collection were implemented. Participants were between 18 and 89 years old ($M = 33.95$; $SD = 12.85$). Most of them were women ($N = 880$; 63.3%) and 495 (35.6%) were men; there was a small number of non-binary people ($N = 1$; 0.1%), transgender ($N = 1$; 0.1%) and of individuals who preferred not to state their gender ($N = 4$; 0.3%) or who identified themselves with another category ($N = 9$; 0.6%). Regarding race/skin color, 40.9% identified themselves as Black ($N = 569$), 37.5% as mixed race ($N = 521$), 20.1% as White ($N = 279$), and 0.4% as Asian ($N = 6$). There were also 0.4% responses “unknown” ($N = 5$) and 0.8% non-responses ($N = 11$). Regarding education, 26.3% had incomplete higher education ($N = 366$), 22.1% had completed postgraduate studies ($N = 308$), 16.6% had completed high school ($N = 231$), and 5% had completed technical school ($N = 70$). Other levels of education included 14.5% with completed higher education ($N = 202$), 5.6% with incomplete postgraduate studies ($N = 78$), and 3.5% with incomplete primary education ($N = 49$). Finally, the distribution by social class was 16.6% in the lower class ($N = 231$) and 9.2% in the upper class ($N = 127$), and 60.9% gave no answer ($N = 847$).

Specifically for each wave of data collection, participants were stratified as follows: in Wave 1, 406 respondents participated ($N = 406$), with the majority identifying themselves as White ($N = 202$; 49.8%) and Brown ($N = 144$; 35.5%). Regarding education level, incomplete higher education ($N = 106$; 26.1%) and complete high school ($N = 77$; 19%) predominated. In Wave 2, 463 individuals participated ($N = 463$), with the majority being Brown ($N = 302$; 65.2%) and White ($N = 159$; 34.2%). Education level was predominantly incomplete elementary school ($N = 175$; 37.8%) and complete elementary school ($N = 207$; 44.7%). In Wave 3, 453 individuals participated ($N = 453$), with 62.5% identifying themselves as Black ($N = 283$) and 37.3% as Brown ($N = 169$). Regarding education, 34.9% ($N = 158$) had incomplete higher education and 21.6% ($N = 98$) had completed postgraduate studies.

Instruments

Participants responded to the reduced version of the CC Scale (CCR), with the addition of the following instruments:

Sociodemographic Questionnaire: questions related to age, gender, race/skin color, income and level of education.

Lifetime Marginalization Experience Scale (Duffy et al., 2019): adapted to the Brazilian context by Pires (2021); the scale aims to capture the experience of marginalization throughout life. It is a three-item instrument, answered on a seven-point Likert-type scale (‘strongly disagree’ to ‘strongly agree’). Example: “Throughout my life, I have had many experiences that made me feel excluded / discriminated against / marginalized”. The measure had an internal consistency index of $\alpha = 0.91$.

MacArthur Scale of Subjective Social Status (Adler et al., 2000): the instrument presents a figure with ten steps of a social ladder, on which respondents indicate where they believe they fit in. The scale was adapted for Brazil (Giatti et al., 2012) and had a Kappa reliability of 0.62 (0.58 to 0.64) and good test-retest stability.

Collection Procedures

Data collection for this study took place between 2022 and 2024, using a mixed approach (online and in-person). For the online version, data collection was performed through the social media and the replication of survey cards in messaging apps, where participants were directed to the questionnaire hosting platform via a link or QR code. The paper-and-pencil collection was conducted in person in different settings, such as university campuses, bus stops, city squares, street shops, and shopping malls, thus seeking to obtain a wide range of respondents.

It should be noted that both collections followed ethical standards, with approval from the Research Ethics Committee (CAAE: 67523322.5.0000.5059). All participants agreed to participate by signing the Free and Informed Consent Form, or, in the online version, the Informed Consent Form.

Data Analysis Procedures

Initially, the data were checked for errors or missing answers and organized in a spreadsheet. Subsequently, an Exploratory Factor Analysis (EFA) was performed on a portion of the sample ($N = 843$). To evaluate the factor structure of the reduced Critical Consciousness scale, the FACTOR software (Ferrando & Lorenzo-Seva, 2014) was used. The criteria adopted for factoring the data were Bartlett's test of sphericity ($p < 0.05$) and Kaiser Meyer Olkin (KMO) greater than 0.80 (Ferrando & Lorenzo-Seva, 2018).

In the second stage, evidence of internal and external consistency was sought with the other part of the sample ($N = 548$). JASP 0.18.3.0 was used to conduct a Confirmatory Factor Analysis (CFA) and verify the fit of the three-factor structure. The estimation method was RDWLS, adopting criteria such as non-significant χ^2 , χ^2/df ratio, CFI and TLI (0.95-1.00), RMSEA and SRMR (< 0.80) (T. Brown, 2015). Multigroup CFA was applied to assess configural, metric, scalar, and strict invariance between online/offline collections, gender, race/skin color, and social class perception, considering variations ≤ 0.01 in CFI and SRMR (Putnick & Bornstein, 2016).

The internal consistency of the Reduced CC Scale was assessed using McDonald's omega coefficients and Cronbach's alpha, whose expected results are values between 0.70 and 0.90 (Streiner & Kottner, 2014). Finally, to explore evidence of external validity, Pearson's r correlation tests were performed.

Results

Dimensional Analysis and Exploratory Factor Analysis

Factor tests were performed with the first sample of 406 respondents to determine evidence of internal structure. Initially, a parallel analysis was conducted using the Bayesian Information Criterion (BIC), with the suggested three-factor solution ($\text{BIC} = 318.47$), a relationship common to the planned theoretical model. Subsequently, an exploratory factor analysis was performed using a polychoric variance matrix and the ULS factorization method (Table 1).

Table 1*Scale Items and Extracted Factors (N = 406)*

Items	CFO	C (%)	CR	CRe	CA
I realize that some racial and/or ethnic groups (such as Black people, indigenous people, etc.) have less chance of “having a future”	0.90	100	0.73		
I realize that women have less chance of getting good working conditions	0.84	100	0.81		
I realize that poor people have less chance of getting good working conditions	0.94	100	0.96		
I realize that poor people have less chance of “having a future”	0.94	100	0.97		
It's important for younger people to know what's going on in the world	0.56	100		0.73	
It is important to be an informed and active citizen	0.82	100		0.74	
It is important to seek to correct social and economic inequalities	0.80	100		0.70	
It is my responsibility to get involved and do better things for society	0.52	100		0.78	
Participated in some type of political movement or organization	0.77	100			0.82
Contacted any government department to communicate any type of dissatisfaction	0.84	100			0.73
Participated in any protest or demonstration in defense of better conditions	0.77	100			0.87
Signed a petition about some social or political issue	0.62	100			0.73
Variance by factor			45%	16%	13%

Note: CA: Critical Action; CR: Critical Reflection; CRe: Critical Responsibility.

In the same Table 1 it is reported that factor 1 covered the items associated with the “Critical Reflection” dimension, factor 2 with the “Critical Responsibility” aspects, and factor 3 with the “Critical Action” aspects. All factors obtained acceptable coefficients, with factor 2 having the least expressive values, although acceptable given the parameters required in research.

Evidence of Internal Structure, Invariance and Precision

In an attempt to corroborate the three-dimensional internal structure, confirmatory factorial procedures and multigroup analysis (data collection method, gender, race, and social class) were performed. Additionally, precision and reliability tests (Cronbach's Alpha and Omega) were also performed (Table 2).

Table 2*Fit Indices of the Critical Consciousness Scale - Brazilian Version*

1 of 2

Collect	χ^2/df	RMSEA (90% CI)	CFI	NFI	SRMR
C2 (N = 463)	2.02	0.05 (0.03–0.06)	0.98	0.96	0.04
C3 (N = 453)	3.68	0.08 (0.07–0.09)	0.92	0.90	0.06
Model Fit Indices by Group	RMSEA	SRMR	GFI	CFI	ΔCFI
Collection Type: In-Person x On-line (N = 548)					
Configural	0.07 (0.06–0.08)	0.05	0.93	0.95	–
Metric	0.07 (0.06–0.08)	0.06	0.93	0.95	0.000
Scalar	0.07 (0.06–0.08)	0.05	1.00	0.95	0.000
Gender: Man x Woman (N = 543)					
Configural	0.07 (0.06–0.09)	0.06	0.92	0.94	–
Metric	0.07 (0.06–0.08)	0.06	0.92	0.94	0.000
Scalar	0.07 (0.06–0.08)	0.06	0.92	0.94	0.000
Strict	0.00 (0.00–0.00)	0.06	1.01	1.00	0.000
Color: Black x White (N = 534)					
Configural	0.07 (0.06–0.08)	0.05	0.93	0.95	–
Metric	0.07 (0.06–0.09)	0.06	0.93	0.93	0.01
Scalar	0.07 (0.06–0.08)	0.06	0.99	0.94	0.01

Table 2*Fit Indices of the Critical Consciousness Scale - Brazilian Version*

2 of 2

Collect	χ^2/gl	RMSEA (90% CI)	CFI	NFI	SRMR	
C2 (N = 463)	2.02	0.05 (0.03–0.06)	0.98	0.96	0.04	
C3 (N = 453)	3.68	0.08 (0.07–0.09)	0.92	0.90	0.06	
Model Fit Indices by Group	RMSEA	SRMR	GFI	CFI	ΔCFI	
Social class: High vs. Low (N = 440)						
Configural	0.08 (0.06–0.09)	0.06	0.91	0.94		
Metric	0.08 (0.07–0.09)	0.07	0.90	0.93	0.001	
Scalar	0.08 (0.07–0.09)	0.06	0.99	0.93	0.000	
Accuracy/Reliability tests						
Factor	Alfa Cronbach			Omega		
	C1	C2	C3	C1	C2	C3
F1	0.70	0.90	0.89	0.83	0.90	0.89
F2	0.62	0.75	0.62	0.64	0.75	0.61
F3	0.81	0.82	0.73	0.81	0.82	0.72

Note: C1: Collect 1; C2: Collect 2; C3: Collect 3. CFI: Comparative Fit Index; GFI: Goodness-of-Fit Index; NFI: Normed Fit Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Square Residuals. Estimator: MLR – Strict type invariance was tested, however it was observed that the difference ΔCFI was greater than the reference assumption ($\Delta\text{CFI} > 0.001$).

According to the data reported in Table 2, an adequate fit was observed in the three-dimensional model (critical reflection, critical motivation, and critical action). Regarding the types of invariance tested, the aspects according to the type of collection (in-person vs. online; $N = 548$), gender (men vs. women; $N = 543$), race (Black vs. White; $N = 534$), and social class (high vs. low; $N = 440$) were invariant in configural, metric, and scalar terms. In terms of strict invariance, the data violated the $\text{CFI} < 0.01$ assumption. Finally, regarding reliability, the precision indicators were acceptable and above 0.75 in the collection 2, and above 0.61 in the collection 3, both for the Cronbach's alpha coefficient and the Omega coefficient.

Evidence of External Validity

Firstly, competition between the full version, containing 24 items, and the reduced version, containing only 12 items, was observed – aspects analyzed based on the data from collection 1. Table 3 displays the data relating to the mean, standard deviation and Pearson's r correlation.

According to the data reported in Table 3, the correlations between the full and reduced versions were classified as strong or very strong ($r > 0.80$) across versions of the critical consciousness measures. This indicates reduced information loss when using the versions with fewer items rather than the full version.

Table 3*Correlations between Full and Reduced Versions (Collect 1; N = 406)*

Variables	M	SD	1	2	3	4	5	6
1. Ref_C. Full	4.40	1.39	1					
2. Ref_C. Red.	4.28	1.49	0.96**	1				
3. Res_C. Full	4.56	0.66	0.10*	0.08*	1			
4. Res_C. Red.	5.65	0.98	0.17**	0.15**	0.80**	1		
5. C.A. Full	2.16	0.78	0.39**	0.37**	-0.04	0.14**	1	
6. C.A. Red.	1.70	0.73	0.27**	0.26**	-0.01	0.11**	0.86**	1

Note: * $p < 0.05$; ** $p < 0.01$. C.A.: Critical Action; Full: Full 24-item version; Red: 12 items reduced version; Ref_C.: Critical Reflection; Res_C.: Critical Responsibility.

Finally, to conduct a focused analysis of the components of Critical Consciousness and the PWT constructs, the same analysis process was applied to two data sets collected by the researchers at different time points (C2 = 463; C3 = 453). Finally, Table 4 presents the relationships found between the dimensions of critical reflection (critical reflection, critical responsibility, and critical action) and PWT constructs (economic constraints, marginalization, decent work, volition, and social class).

Table 4*Correlations between Critical Consciousness and other constructs*

Variables	<i>M</i>	<i>DP</i>	1	2	3	4	5	6
1. Critical reflection	4.28 [4.73]	1.49 [1.43]	1					
2. Critical responsibility	5.65 [5.66]	0.98 [0.63]	0.15* [0.22*]	1				
3. Critical action	1.70 [1.95]	0.73 [0.90]	0.26* [0.27*]	0.11* [0.09*]	1			
4. Social Class	5.56 [4.70]	1.75 [2.29]	-0.18* [-0.28*]	0.03 [0.01]	0.01 [-0.12*]	1		
5. Marginalization in life	2.64 [3.46]	1.61 [1.92]	0.23* [0.32*]	-0.07 [-0.01]	0.11* [0.25*]	-0.24* [-0.27*]	1	
6. Economic constraints	3.05 [3.80]	1.61 [1.85]	0.04 [0.19*]	-0.07 [0.05]	-0.01 [0.20*]	-0.35* [-0.30*]	0.32* [0.56*]	1

Note: * $p < 0.05$. Collect 2; N = 463 [Collect 3; N = 453].

The first element of Critical Reflection was shown to be correlated with aspects of Critical Responsibility ($r = 0.15$; $r = 0.22$), Critical Action ($r = 0.26$; $r = 0.27$), social class ($r = 0.23$; $r = 0.32$), marginalization ($r = -0.18$), volition ($r = -0.11$), general decent work ($r = -0.12$), and economic constraints ($r = 0.19$). In contrast, Critical Responsibility was only related to Critical Action ($r = 0.11$). Ultimately, Critical Action revealed connections with marginalization ($r = 0.11$; $r = 0.25$), social class ($r = -0.12$), and economic constraints ($r = 0.20$).

Discussion

This article presents a reduced instrument of Critical Consciousness measurement, consisting of 12 items. Three waves of data collection were implemented, yielding robust data from over 1,322 respondents. Factor analyses corroborated evidence of an internal structure with three dimensions (Critical Reflection, Critical Responsibility, and Critical Action), invariant by data collection type, gender, race, and social class, as well as evidence of accuracy. Correlation analyses indicated evidence of external validity with a full version and with the construct of the Psychology of Working Theory (Duffy et al., 2016), with significant correlations being observed with social class, marginalization, and economic constraints.

The evaluation of the psychometric properties of the internal structure revealed a good fit to the three-factor model, as demonstrated by the confirmatory factor analysis – similar to studies conducted in Brazil (Pedruzzi & De Andrade, 2024) and in the United States (Rapa et al., 2020). Regarding reliability, the Brazilian reduced version presented good accuracy indices measured by McDonald's Omega coefficient, with estimates ranging from 0.61 to 0.90; and Cronbach's alpha, between 0.62 and 0.90, indicating reliability of the measure's subfactors. These results corroborate accuracy indicators of other previously published versions of the measure (Diemer et al., 2017; Rapa et al., 2020).

As expected in the item reduction processes for a psychometric measure, factor accuracy rates were reduced, especially when compared to the full version (Pedruzzi & De Andrade, 2024). The Critical Responsibility factor presented the lowest coefficients in both the full and reduced

versions, with values between $\alpha = 0.62$ and 0.75 ; and $\omega = 0.61$ and 0.75 . These results indicate that a careful review of this factor may be necessary in future measurement proposals. However, it is important to highlight that, even with the reduction of more than half the number of items, the measure preserved good evidence of convergent validity between the full and reduced versions, with all Pearson correlations (r) being above 0.80 , making it a good option for data collection in research with other scales and measures.

Another significant advance in the investigation was the verification of the data's fit for different audiences through invariance tests – a characteristic increasingly valued in psychometric instruments (Bagalho & De Andrade, 2023; De Andrade et al., 2022; Peixoto et al., 2024). This property was also identified in the full version of the scale, which includes educational level as a variable, although without controlling for race (Pedruzzi & De Andrade, 2024), as well as in the most recent North American version (Rapa et al., 2020). The results demonstrated that the CCR was invariant with regard to the collection method, gender, race/skin color, and social class. The tests performed for these variables showed that the data are equivalent across the different categories, enabling reliable comparative analyses between different groups and collection methods.

To strengthen the nomological network, external evidence was gathered with contextual measures of marginalization in life, economic constraints, and social class, based on the PWT (De Andrade et al., 2025; Duffy et al., 2016). Taking Critical Reflection as a reference, which represents awareness of social, historical, and structural inequalities (Pedruzzi & De Andrade, 2024), negative external correlations with social class were observed. The Critical Action domain, associated with individual or collective engagement in questioning oppressive practices in society (Cadenas & McWhirter, 2022), functioned similarly to the Critical Reflection, but with lower correlates (Responses Collection 3). No external correlations were observed with the critical responsibility aspect.

In turn, the significant results from external evidence suggest that the more inferior the individuals perceive themselves to be in relation to other members of society, the greater their awareness of being oppressed by it – a consistent pattern revealed across both data collections. For example, Critical Reflection, which included critical analysis of social inequalities and aspects of egalitarianism, correlated negatively with perceptions of social class. That is, individuals who perceive themselves as having less money, less education, or the worst jobs (Giatti et al., 2012) tend to perceive higher levels of structural social inequalities. Furthermore, positive correlations were identified between Critical Reflection and marginalization and economic constraints, demonstrating that lower resource availability is associated with a greater perception of the mechanisms of social inequality, aligning with the theory's sense of coherence proposed.

Aligned with the conceptual domains of the work of Brazilian pedagogue and philosopher Paulo Freire, the process of psychometric adaptation, whether in the reduced or full version of a scale, presents limitations that distance it from the precepts of his seminal work. However, just as recent studies recognize the importance of understanding individual and group perceptions of oppression and social inequality in the field of social justice (Freire, 1979; 1987), the instrument presented here, just like its previously adapted full version (Pedruzzi & De Andrade, 2024), offers researchers and professionals in education and psychology a relevant tool for advancing research on the topic.

From the perspective of the conceptual and practical aspects of the construct, although no statistically significant differences were identified, it is observed that the means for the Critical Action domain are significantly lower than those for the Critical Reflection and Critical Responsibility domains. In a preliminary analysis, this result may indicate a greater difficulty in engaging in the struggle for more equitable aspects of life. Furthermore, it may reflect the perception of seemingly

insurmountable barriers imposed by structures of wealth division in society, which can discourage effective actions for social transformation. As Freire (1987) argues, recognizing oppression is only one step in the development of Critical Consciousness. In an oppressive macrosystem, Critical Action can be hampered by structural barriers, discouraging mobilization.

Furthermore, in this study, critical action reflects sociopolitical participation, having been positively correlated with marginalization in life. That is, people who feel more excluded throughout their lives are those who tend to engage more, individually or collectively, in actions that can challenge oppressive social practices (Cadenas & McWhirter, 2022). In the Brazilian context, where disparities in income, race/skin color, and education are prevalent and have a long history (Instituto Brasileiro de Geografia e Estatística [IBGE, Brazilian Institute of Geography and Statistics], 2023), people may perceive that, even when taking action, their actions are insufficient to generate systemic changes at the macro level. This finding corroborates those of Arce et al. (2024), who demonstrated that, even among Latino immigrants in the US, awareness of the discrimination they experience does not translate into transformative actions due to structural barriers.

The results of this investigation open an important gap for researchers regarding the challenge of promoting awareness of everyday oppressions in people living in an unequal economic system, while simultaneously developing their capacity to become agentic subjects, capable of making decisions and acting consciously and intentionally in the world around them, seeking social transformation. As a practical implication, it is indicated that intervention programs should seek to go beyond reflection, encouraging critical action in order to develop more active and participatory citizenship. The reduced version of the Critical Consciousness scale was successful setting a precedent for measuring the impact of these interventions by assessing how marginalized individuals are assuming the role of transformative agents in their communities.

In the Brazilian context, for example, racial and class inequalities are particularly pronounced due to the historical legacy of slavery and colonization, and the marginalization of ethno-racial groups, such as Black and indigenous people. This reflects in various social indicators – such as access to education, employment, and income (IBGE, 2023). These disparities, when interpreted through the perspective of Critical Consciousness, can allow these groups not only to recognize their condition but also to get organized to confront such oppressive structures.

Conclusion

This study aimed to develop a shortened version of the Critical Consciousness Scale (CCS), making the assessment of constructs in psychosocial studies faster and more agile. In the field of psychological measurement and research, Critical Consciousness can be understood as a gradual process, beginning with reflection and culminating in transformative action, and can be assessed by the CCS. Through judge analysis procedures, followed by factor analysis and invariance strategies, our research sought a shortened 12-item version of the measure, covering the dimensions of Critical Reflection, Critical Responsibility, and Critical Action. The objective was achieved, and external validity evidence points to correlations between the dimensions of critical consciousness and aspects of social class, marginalization, economic constraints, and decent work.

As with other studies, one of the limitations of the current study is the lack of implementation of the Egalitarianism component, due to the divergence presented in the literature in favor of aspects of greater coherence and parsimony. In the critical reflection domain, the items assess only aspects of gender, race/skin color, and social class; however, they do not take into account other

intersectional aspects that may be targets of discrimination, such as disabilities, sexual orientation, and gender identities.

Another aspect to be considered concerns the binary evaluation of the selected gender categories. Although the groups represented are highlighted, the researchers in this investigation fully understand that social categories are broader than those represented here. However, the low sample representation of other audiences, allowing for indicative analyses of similarities or differences, remains a point to be overcome in the field of psychometrics. However, this does not mean that our analyses are invalid. On the contrary, the MCFA analyses provide even more valuable evidence about our instrument albeit caution is needed when applying this instrument to different audiences.

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Contributors

Conceptualization: A. L. De ANDRADE and P. F. PEDRUZZI. Data curation: A. L. De ANDRADE, J. P. R. NUNES, R. M. MELO, and P. F. PEDRUZZI. Data analysis: A. L. De ANDRADE, J. P. R. NUNES, R. M. MELO, and P. F. PEDRUZZI. Methodology: A. L. De ANDRADE and J. P. R. NUNES. Supervision: A. L. De ANDRADE. Writing of the original manuscript: A. L. De ANDRADE, J. P. R. NUNES, and R. M. MELO. Writing, reviewing and editing: A. L. De ANDRADE, J. P. R. NUNES, R. M. MELO, and P. F. PEDRUZZI.